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PATENT  
Customer No. 58,982  
New Attorney Docket No. 08350.0608-00000

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:	)	
	)	
Todd D. CREGER et al.	)	Group Art Unit: 2128
	)	
Application No.: 10/006,959	)	Examiner: DAY, HERNG-DER
	)	
Filed: November 5, 2001	)	
	)	
For: METHOD FOR COMPENSATING	)	Confirmation No.: 2767
FOR VARIATIONS IN MODELED	)	
PARAMETERS OF MACHINES	)	

**Attention: Mail Stop Appeal Brief-Patents**  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**REPLY BRIEF**

Pursuant to 37 CFR § 41.41(a)(1), Appellants present this Reply Brief in  
response to the Examiner's Answer mailed on September 7, 2006.

**REMARKS**

**I. Status of Claims**

In response to the Appeal Brief filed on May 17, 2006, the Examiner has maintained the rejection of claims 1-5, 7, and 8 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Pub. No. 2002/0138240 to Jelley et al. ("Jelley"); claims 6 and 10-12 under 35 U.S.C. § 103(a) as being unpatentable over Jelley in view of U.S. Patent No. 6,411,908 to Talbott; and claim 9 under 35 U.S.C. § 103(a) as being unpatentable over Jelley in view of Applicants' assertions.

**II. Response to Examiner's Arguments in the Answer**

In addition to the arguments for reversal of the outstanding final rejection provided in Appellants' Appeal Brief filed on May 17, 2006, Appellants provide the following remarks regarding the Examiner's Answer mailed on September 7, 2006.

Jelley discloses using a neural network to predict one or more operating characteristics of an earth boring drill operated under a set of known operating conditions, and employs a single model in its prediction. That is, Jelley uses only a single model to predict a machine parameter. In contrast, Appellants' invention relies upon both a model development machine and a test machine to each include a model for predicting machine parameters.

The Examiner combines unassociated portions of Appellants' disclosure, in doing so, mischaracterizes Appellants' claimed invention. For example, the Examiner states that "[i]n some circumstances, the model development machine 104 may function as a test machine 606" (page 6 paragraph 29) and "[i]n a first control block 402, a neural

network model 802 is delivered from the model development machine 104 to each test machine 106” (specification at page 7, paragraph 32.) Examiner’s Answer at 10. The Examiner then concludes that “[i]n view of the Specification, the neural network model of the test machine is delivered from the model development machine,” and adds that “[t]herefore, these two models (i.e., the neural network model on the model development machine and the delivered neural network model on the test machine) are the same before further updating the delivered neural network model on the test machine.” *Id.* Appellant is unclear as to what the Examiner means by “these two models (i.e., the neural network model on the model development machine and the delivered neural network model on the test machine) are the same.” In any event, Appellants’ disclosure makes clear the existence of a model development machine including a model as well as a separate test machine, also including a model. For example, claim 1 recites, *inter alia*, “establishing a model development machine having a first at least one model to predict a machine parameter; [and] establishing at least one test machine having a second at least one model to predict the machine parameter.” (emphasis added.) In addition, on page 7, paragraph 32, the specification states:

Preferably, the neural network model 802 of the model development machine 104 offers the advantage of having “learned” over a long period of time, under controlled conditions. Thus, the neural network model 802 has already experienced the long learning period required of neural networks. This eliminates the time period previously needed for the test machine 106 to teach their own neural networks.

In other words, the test machine possess its own neural network model and the model development machine also possess its own neural network model. Because the model development machine’s neural network has “learned” over a long period of time,

the test machine benefits by eliminating the long period of time it would take to train its own neural network. In essence, the model development machine's neural network imparts its knowledge to the test machine's neural network. See, e.g., specification at pages 1-2, paragraphs 3-7. And two separate neural network models are need for this process.

The Examiner further asserts that "a machine having a trained baseline neural network would be a model development machine. Later on, when the same machine having the same trained baseline neural network is ready to have a fine-tuning at the specific work site it functions as a test machine." Examiner's Answer at 10. Appellants object to the Examiner's characterization of Appellants' disclosure. Nevertheless, even under the Examiner's characterization, two neural networks are needed during the "fine-tuning" process. A (model development), fine-tuned, machine, and a test machine in need of fine-tuning by the model development machine. As noted above, Jelley uses only a single model to predict a machine parameter and does not disclose two separate models.

The Examiner also contends that "[c]omparing and updating steps are both anticipated by Jelley at paragraph [0020]." *Id.* at 11. We disagree. Jelley discloses drill bit modeling that is able to predict an operating characteristic of a drill bit from a set of inputs based upon drill bit design parameters and a set of anticipated operating conditions, such that "only minimal field testing of the new design is required to verify its performance." See Jelley, page 2 paragraphs 17 and 18. In Appellants' claimed invention, on the other hand, data obtained from the test machine is compared to the model development machine and at least one of an estimator and a model associated

with the test machine are updated in response to variations in the compared data. In other words, the test machine benefits from the learning process the model development machine has undergone and incorporates that learned behavior into its model. Because Jelley discloses a single model and does not update at least one of an estimator and a model associated with the test machine, it fails to anticipate at least independent claims 1 and 7.

Appellants further submit that Talbot does not cure the deficiencies noted above with respect to Jelley because Talbot fails to disclose or suggest “updating at least one of an estimator and a model of each machine encoded in the computer,” as recited in independent claim 10. Since both Talbot and Jelley fail to disclose or suggest the above recitation, their combination cannot render at least independent claim 10 obvious.

**Conclusion**

For the reasons given above, and those reasons provided in Appellants' Appeal Brief, Appellants respectfully submit that the rejections of claims 1-12 are in error and should be reversed.

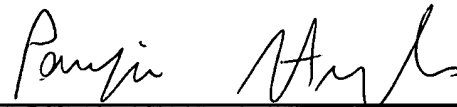
To expedite prosecution, Appellants are open to discuss the foregoing with the Examiner at any time. Appellants thus invite the Examiner to call the undersigned at the Examiner's convenience to discuss the application.

If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, please charge such fees to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER, L.L.P.

Dated: November 7, 2006

By:   
Panyin A. Hughes  
Reg. No. 55,288